

Cross-modal / Multisensory Day
Departments of Psychology and Philosophy
University of Glasgow

10th March 2014

Location: 5th Floor Seminar Room, 58 Hillhead Street

Part 1: Research Introductions and Areas of Interest

Gregor Thut (Institute of Neuroscience & Psychology): Looking at the causal relation between brain oscillations and visual perception, and how this predicts perceptual outcomes.

Stephen Brewster (Computing Science)

Improving interaction between humans and computers, including those with visual impairment, through the use of multi-modal interfaces, such as virtual 3D sound via headphones.

Christoph Kayser (Institute of Neuroscience & Psychology)

Examining the mechanisms for multisensory integration in the brain, with a focus upon the processing of auditory information and how this is improved by visual information.

Minhua Ma (Digital Design Studio)

Developing 'serious games' for various health conditions, EEG devices for live performance, virtual and augmented reality experiences, 3D stereoscopic and ambisonic surround sound, full body motion tracking, and haptic feedback systems.

Fiona Macpherson (Philosophy)

Researching the individuation of the senses, taxonomies of cross-modal interaction both within and across various criteria of individuation; the structure of perceptual experience and whether it has any essential features; sensory substitution and augmentation.

Frank Pollick (Psychology)

Multisensory integration in expert and novice subjects; autistic spectrum disorder; the effect of emotions in the overriding of auditory cues by vision; synchronicity, brain imaging and vicarious touch in the observation of dance.

David Simmons (Psychology)

Researching sensory sensitivity and overload in autism, and developing 'sensory audits' to measure the level of sensory stressors in an environment.

Rachel Smith (English)

Examining multimodal linkages between phonetic and visual perception in the experiences of synaesthetes as part of 'The Colours of Voices' interdisciplinary research project.

Part 2: Talk Session, chaired by Keith Wilson (Philosophy)

Paula Regener: 'Audiovisual processing differences in autism spectrum disorder'

Examines the wide variety of results in temporal integration judgements amongst autistic subjects, finding that variations in the temporal binding window are greater in the case of synchrony judgements.

Stephanie Morand: 'Audiovisual cross modal phase-reset modulates perception'

Looks at the variation in the likelihood of reporting certain visual phenomena (e.g. amodal completion) at various phases of rhythmic brain activity. Concludes that the beta frequency (~27Hz) has some kind of functional role in 'resetting' this cycle.

Ioannis Politis: 'Multimodal driver displays'

Researching multi-modal displays for drivers using various combinations of modalities to signal warnings. Finds that perceived urgency is correlated with the use of faster repetitions and brighter colours, whereas perceived annoyance correlates with the number of modalities used.

Flor Kusnir: 'Formation of letter-colour associations in non-synaesthetic learners'

Investigates whether randomised, but biased, associations between letters and colours produce the same kinds of memory effects that are present in colour-grapheme synaesthesia, with provisional results indicating that they can.

Part 3: Talk Session, chaired by Ioannis Politis (Psychology)

Roberto Cecere: 'Causal role of alpha oscillations in sound-induced visual illusions'

Examines variations in the temporal binding window in the 'double-flash' illusion, finding that frequency effects (approx. 100ms) are strongly correlated with alpha oscillations in the brain. Provisional hypothesis: alpha oscillations provide a threshold for multisensory temporal binding.

Abraham Sapién Córdoba: 'Cross modal modulation: senses, emotion, pain'

Examines how the senses modulate emotions, in turn modulating subjects' experience of pain, along with how contextual factors can make 'unpleasant' sensations part of a pleasant overall experience.

Fiona McGruer: 'Visual cortex responds to multisensory information'

Examines activity in V1 and V5 in well-known cases of illusion, such as the phi phenomenon (apparent motion) and 'rubber hand' illusion, finding that these areas are equally, if not more, active during illusions in a way that is consistent with predictive coding feedback models.

Keith Wilson

University of Glasgow, 13 May 2014